SAG
FILE

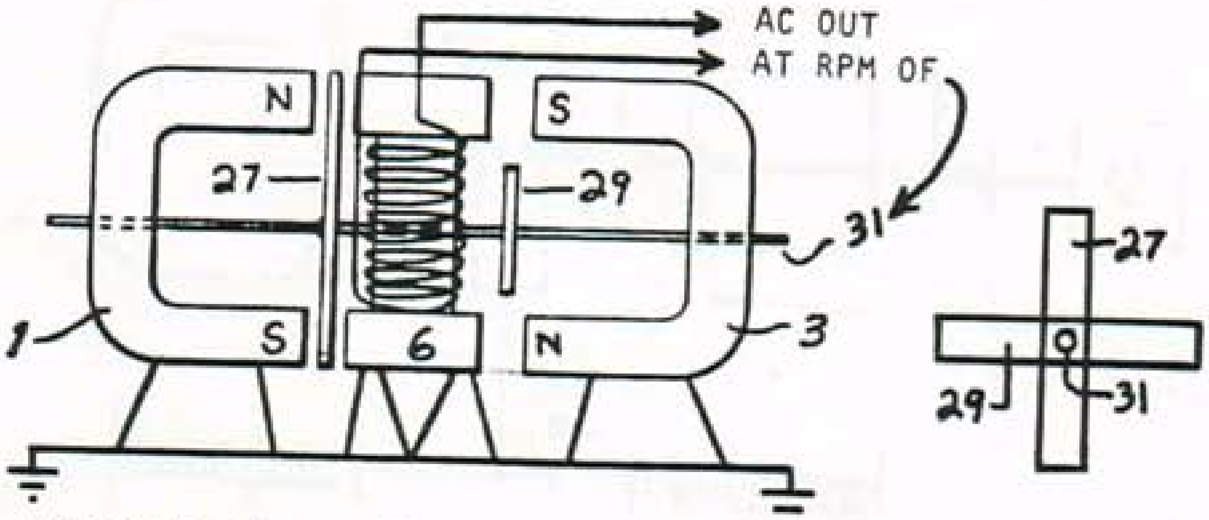
SAG = Stationary Armature Generator

The Ecklin Stationary Armature Generator

Remember such sayings as couldn't see the forest for the trees, or if it had been a snake it would have bit you? Well, that's what you'll be thinking after reading about the Ecklin stationary armature generator.

Don't let the simplicity of this device fool you into thinking it can't be anything important. It may well be the best answer yet to our energy problems. It is the very simplicity of what is required to produce electrical power that has led the makers of generating equipment in the wrong direction from the beginning. All that is needed to get electricity from a coil of wire is to have a changing magnetic field at the coil. From the very beginnings of the invention of generating equipment, it seems the only way that has been considered to obtain the changing magnetic field has been the moving of coils of wire past magnets or magnets past coils.

It was the old couldn't see the forest for the trees all right. They reasoned that in order to get a changing magnetic field, they just had to move one or the other, and in doing so consume 98% of the input energy while they were at it. They were concentrated on the wrong problem. The problem easily became how to move the coils or the magnets. Altho that did change the magnetic field all right, it led people to believe that the only problem involved in engineering a good generator was the problem of the moving of coils past magnets or magnets past coils. Since the idea has worked, however inefficiently, for so many years now, this way in which we produce electricity has taken on a sort of sacredness to many people. You just don't question something that does in fact work, and you certainly don't question something that has worked for such a long period of time. Why, you'd just have to be crazy, they'll tell you, to think that moving coils past magnets or magnets past coils isn't the way to produce power.



SAG 6 Stationary Armature Generator

And that leads us to Mr. Ecklin's SAG 6. Using a slightly different configuration of his patent #3,879,622, he's made both the magnets and the coil stationary. That being the case, you don't have the problem of using up most of your input power moving heavy masses of coils or magnets.

PATENTED APR 22 1975 3,879,622

SHEET 2 OF 2

Fig. 3

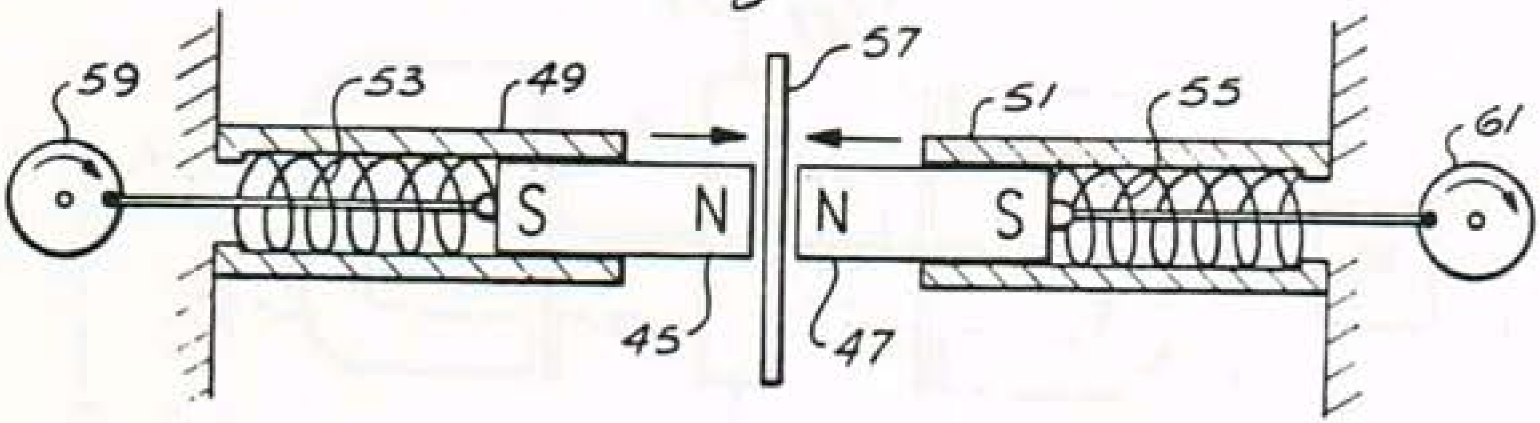
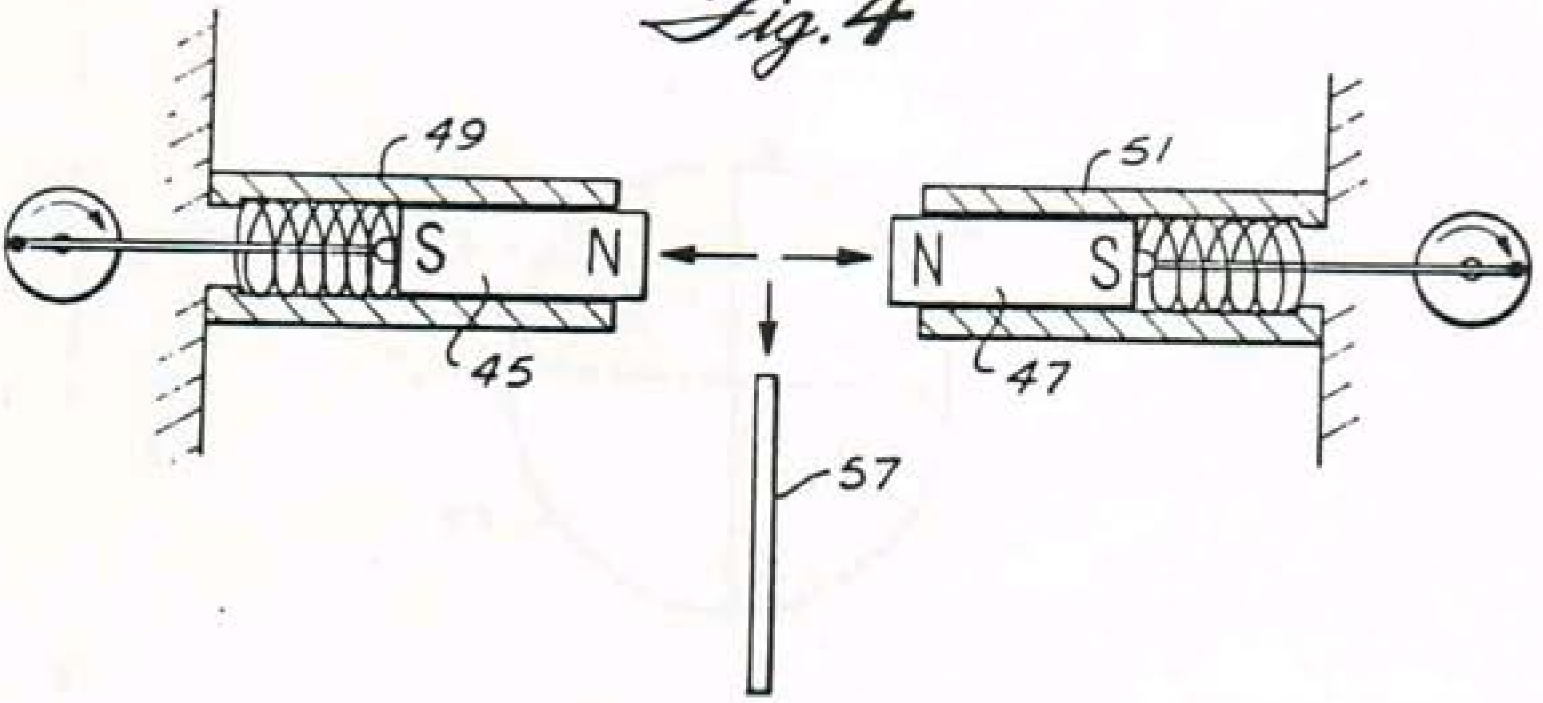


Fig. 4



PERMANENT MAGNET MOTION CONVERSION DEVICE

BACKGROUND OF THE INVENTION

This invention relates to the use of energy stored in the fields of permanent magnets. This energy is utilized in prime movers capable of producing work without the addition of energy from an outside source.

The world is now confronted with a crisis brought about by a shortage of sources of energy. People everywhere are being asked to conserve energy in every possible way, and scientists are seeking diligently for new sources of energy and for ways to utilize conventional sources more efficiently.

Electromagnetic energy is known and employed throughout the world in countless applications. Permanent magnets have played a large part in the development and utilization of electromagnetic energy, but no significant use as a primary energy source has ever been made of the potential energy which exists in the field of a permanent magnet. It is an object of this invention to provide a permanent magnet motor which produces reciprocating motion. The reciprocating motion thus produced may be converted to rotary motion by conventional mechanisms as desired.

SUMMARY OF THE INVENTION

The invention utilizes the attraction and repulsion properties of the magnetic fields of permanent magnets to produce reciprocating motion in a member of magnetizable material. A first embodiment of the invention employs a pair of permanent magnets positioned in spaced relationship along a common axis. A spring-biased magnetizable member is mounted along the common axis between the permanent magnets. A rotatable shutter of magnetic shielding material is mounted between the spring-biased magnetizable member and each permanent magnet. When the shutters are rotated to expose and shield, in alternate sequence, the magnetizable member from the magnetic fields of the permanent magnets, the magnetizable member is caused to reciprocate along the common axis between the permanent magnets. The reciprocating motion of the member can be converted to useful work by conventional mechanisms.

A second embodiment utilizes a pair of permanent magnets mounted for reciprocating movement along a common axis. The magnets are spring-biased in adjacent positions with like magnetic poles facing each other. A magnetic shielding shutter is moved in and out from between the facing magnetic poles to cause the permanent magnets to repel each other against the spring action to produce reciprocating motion.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagrammatic view of one embodiment of a permanent magnet motor constructed in accordance with the invention;

FIG. 2 is a plan view of one of the rotary shutters used as a magnetic shield in the device of FIG. 1;

FIG. 3 is a diagrammatic view of a second embodiment of the invention with the magnetic shield in position; and

FIG. 4 is a diagrammatic view of the device of FIG. 3 with the magnetic shield removed from between the permanent magnets.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention will be understood more readily by referring to FIG. 1 which is a diagrammatic view of a first form of the invention which may utilize either the attraction or replusion of magnetic fields to produce reciprocating motion in a prime mover device. A pair of permanent magnets 1 and 3 are positioned in spaced relationship to each other with a magnetizable member 5 located therebetween. The member 5 is shown with arms 7 and 9 connected thereto. Arm 7 is also connected to driving link 11 which is provided to convert the reciprocating motion of member 5 to rotary motion by means of eccentric connection to circular member 13.

The member 5 is spring-biased in the position shown by means of springs 15, 17, 19 and 21. Biasing links 23 and 25 connect arms 7 and 9 to the spring members.

A pair of rotatable shutter members 27 and 29 are mounted on shaft 31 which is concentric with the common axis of permanent magnets 1 and 3 and magnetizable member 5. Shaft 31 is driven by a suitable device such as motor 33 shown.

FIG. 2 is a plan view of rotatable shutter 27 shown in FIG. 1. The shutter 27 comprises cutout portions 35 and 37 and portions 39 and 41 of magnetic shielding material. The positions of the magnetic shielding portions of shutters 27 and 29 are displaced 90° in rotation from each other so that when shutter 27 exposes the pole pieces of permanent magnet 1, shutter 29 is shielding the pole pieces of permanent magnet 3.

In operation the motor 33 turns shaft 31 and the rotatable shutters 27 and 29 attached thereto. As the pole pieces of one of the permanent magnets are exposed, magnetizable member 5 is attracted thereto, since at the same time the pole pieces of the other permanent magnet will be shielded. As the shutter continues rotation the pole pieces of each magnet will be alternately exposed and shielded causing magnetizable member 5 to reciprocate back and forth between the permanent magnets with assistance from the biasing springs, one pair of which will be compressed while the other pair is tensioned. The circular wheel 13 serves as a power-take-off means and converts the reciprocating motion of magnetizable member 5 to circular motion for shaft rotation.

An alternative arrangement could be achieved in the device of FIG. 1 by substituting a permanent magnet for the magnetizable member 5. In this case the magnet would have to be oriented so that like magnetic poles were always adjacent each other. The device would operate by the repulsion properties of like magnetic poles with the reciprocating member 5 being repelled by magnetic forces as the rotatable shutter uncovered the pole pieces.

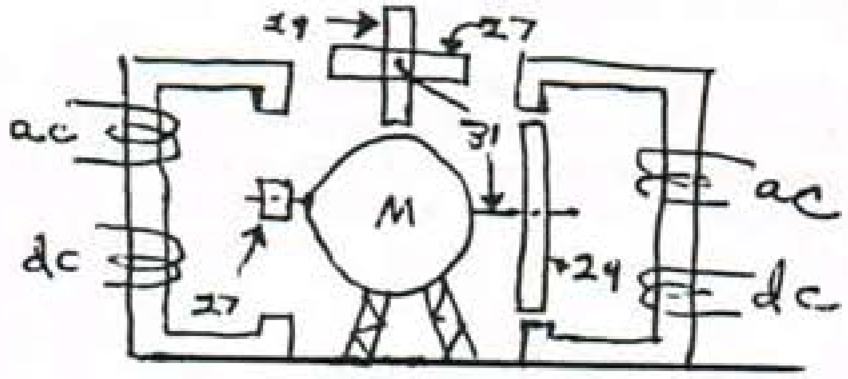
FIGS. 3 and 4 illustrate a second embodiment of the invention employing the property of magnetic repulsion. A pair of permanent magnets 45 and 47 are positioned in tubular members 49 and 51. Springs 53 and 55 bias permanent magnets 45 and 47 in position so that like magnetic poles are adjacent. A magnetic shutter member 57 separates permanent magnets 45 and 47 when they are in their fully-biased position.

When the magnetic shutter member 57, which acts as a magnetic shield between permanent magnets 45 and 47, is removed, as shown in FIG. 4, the magnets 45 and

ECKLIN GENERATOR UPDATE

THE SECRET OF A VARIABLE FLUX PATH TRANSFORMER/GENERATOR IS WELL HIDDEN IN LENZ'S LAW AND THE CRITICAL DIFFERENCE BETWEEN MAGNETIC INDUCTION OF STEEL COMPARED TO A COIL OF WIRE. WHETHER YOU PUSH STEEL TO THE POLE OF A MAGNET OR PULL IT AWAY THE STEEL IS ALWAYS ATTRACTED. WHEN YOU PUSH A COIL TO THE POLE OF A MAGNET IT IS REPELLED AND YET THE COIL MUST STILL BE PULLED AWAY. A VFPT/G HAS NO RELATIVE MOTION BETWEEN A MAGNET AND A COIL WHICH WE FIND IN ALL PRESENT POWER GENERATORS. THESE GENERATORS ROTATE A STEADY MAGNETIC FIELD IN A STATIONARY COIL OF WIRES OR VICE VERSA TO GET A CHANGING MAGNETIC FIELD AT A WIRE WHICH IS ALL THAT IS REQUIRED TO CREATE ELECTRICITY. MAGNETIC FLUX PREFERS STEEL 7,000 TO 1 COMPARED TO AIR.

GET 2 C SHAPED ARMATURES AND WRAP EACH WITH 2 COILS. ONE COIL WILL HAVE A DC (DIRECT CURRENT) INPUT AND WE WILL GET AC (ALTERNATING CURRENT) OUT OF THE OTHER. PARALLEL BOTH AC COILS SO ONE CREATES THE PLUS AND THE OTHER THE MINUS HALF OF A SINE WAVE. PUT 2 KEEPERS OR SOFT STEEL MAGNETIC FLUX CONDUCTORS ON OPPOSITE ENDS OF A MOTOR (M) SHAFT AND AT RIGHT ANGLES TO EACH OTHER. TURN MOTOR AT 1800 REVOLUTIONS PER MINUTE TO GET 60 CYCLES PER SECOND FROM AC COILS. A MUCH SMALLER MOTOR IS REQUIRED IF YOU GET IT UP TO 1800 RPM BEFORE ENERGIZING DC COILS. YOU GET 3 TO 9 TIMES AS MUCH OUT AS YOU PUT IN AS YOU NO LONGER FIGHT LENZ'S LAW SO THE EXCESS CAN BE USED TO HEAT AND LIGHT YOUR HOME OR TO PROPEL YOUR CAR, ETC.



PERMANENT MAGNET GENERATOR

With this order you will receive a 'bonus' in the form of a copy of the famous Ecklin patent# 3,879,622. This patent discloses a Permanent Magnet Motion Conversion Device. An announcement of this patent was made in The Congressional Record. The patent will explain itself..

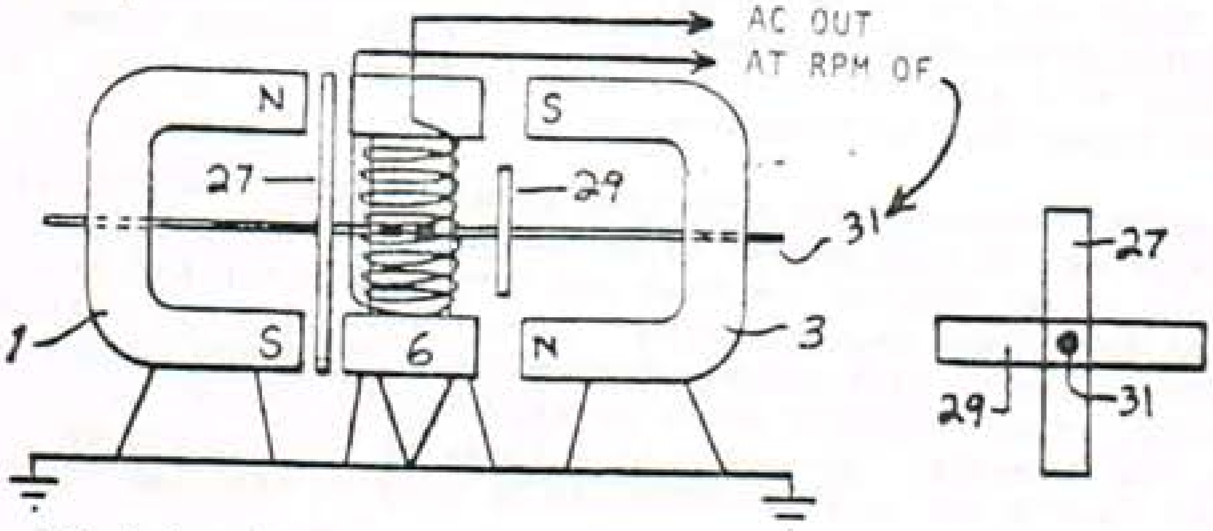
You have also received essential details of the simple Ecklin Permanent Magnet Generator called the SAG 6, Stationary Armature Generator; also an update version we shall call SAG 7, and our own design called SAG 8..

All of the above devices, except SAG 8, have other sources of origin - so we will pass on their descriptions and our own for SAG 8..

Remember the sayings, "You can't see the forest for the trees." and "If it had been a snake it would have bit you." ?? Well, that's what you'll be thinking after reading about the Ecklin Stationary Armature Generator..

Don't let the simplicity of this device fool you into thinking it can't be anything important. It may well be the best answer yet to our energy problems. It is the very simplicity of what is required to produce electrical power that has led the makers of generating equipment in the wrong direction from the beginning. All that is needed to get electricity from a coil of wire is to have a changing magnetic field at the coil. From the very beginning of the invention of generating equipment, it seems the only way that has been considered valid for producing a changing magnetic field has been the moving of coils of wire past magnets or magnets past coils..

It was the old "can't see the forest for the trees" logic. They reasoned, that in order to get a changing magnetic field, they just had to move one or the other (the coil or the magnet) - and in so doing consumed 98% of the input energy while they were at it! They had defined the problem wrong. To them, the problem had one variable factor - either move the coils or the magnets.. Of course, either method would invariably change the magnetic field so people came to believe that the basic key to engineering a good generator was choosing the best way to move the coils or the magnets. That procedure always worked (however inefficiently) so this method became sacred to many people.. One would have to be crazy, to think there is a better way to produce electric power..



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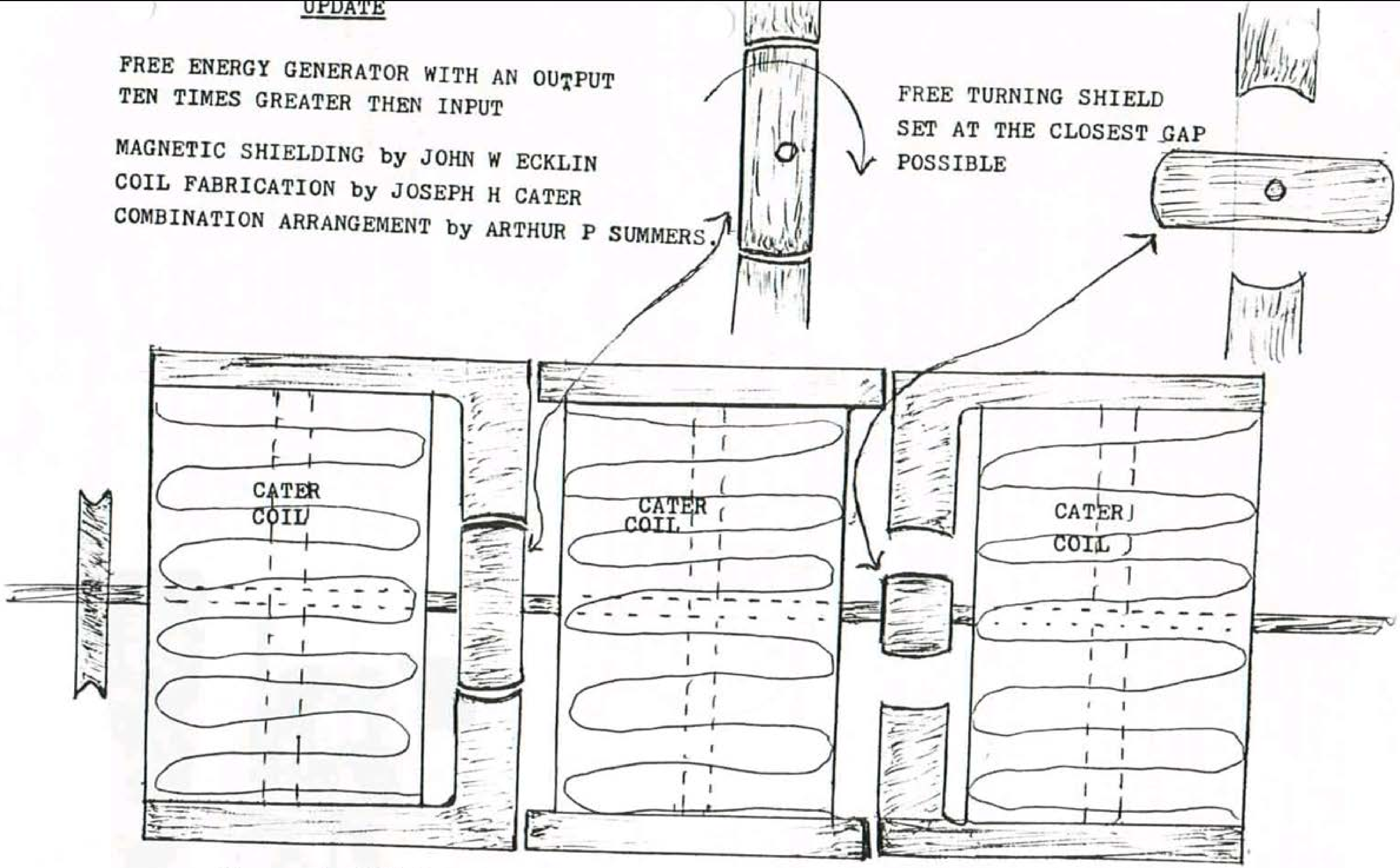
And that leads us to Mr. Ecklin's SAG 6. Using a slightly different configuration of his patent# 3,879,622, he's made both the magnets and the coil stationary. That being the case, you don't have the problem of using up most of your input power just moving heavy masses of coils or magnets..

UPDATE

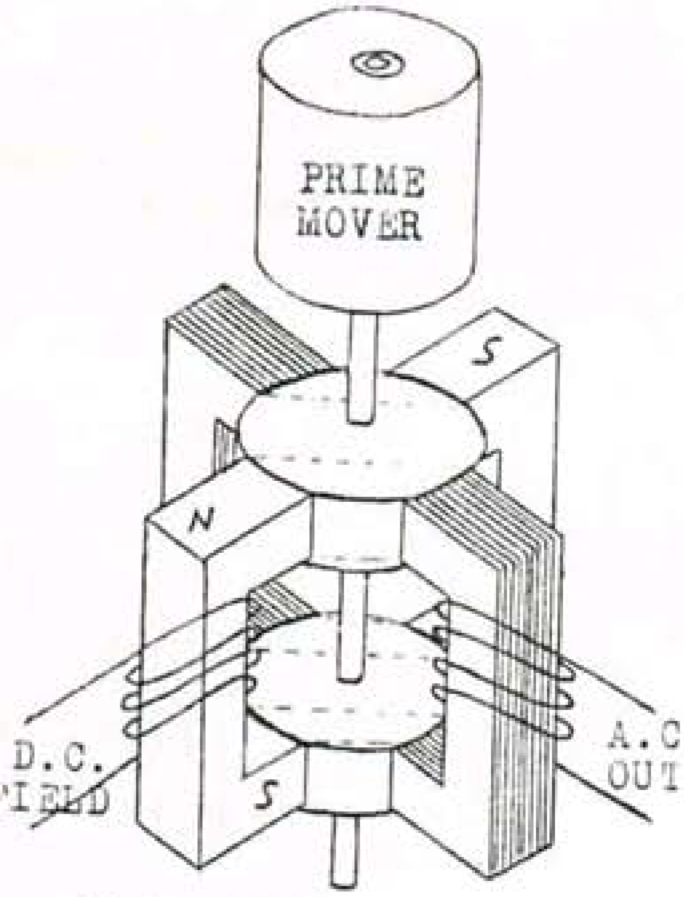
FREE ENERGY GENERATOR WITH AN OUTPUT TEN TIMES GREATER THEN INPUT

MAGNETIC SHIELDING by JOHN W ECKLIN
COIL FABRICATION by JOSEPH H CATER
COMBINATION ARRANGEMENT by ARTHUR P SUMMERS.

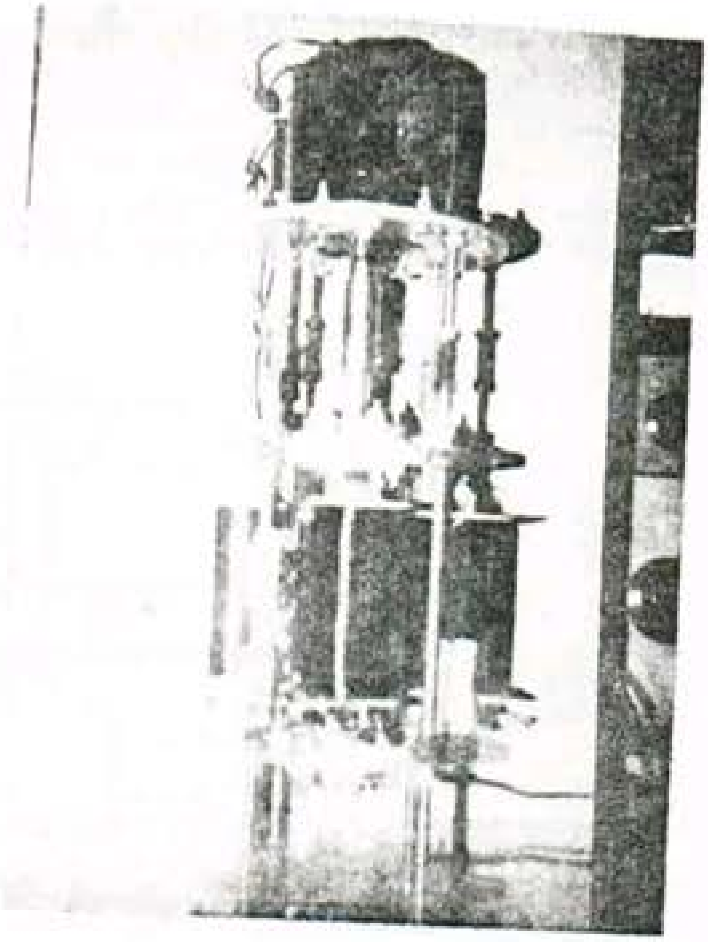


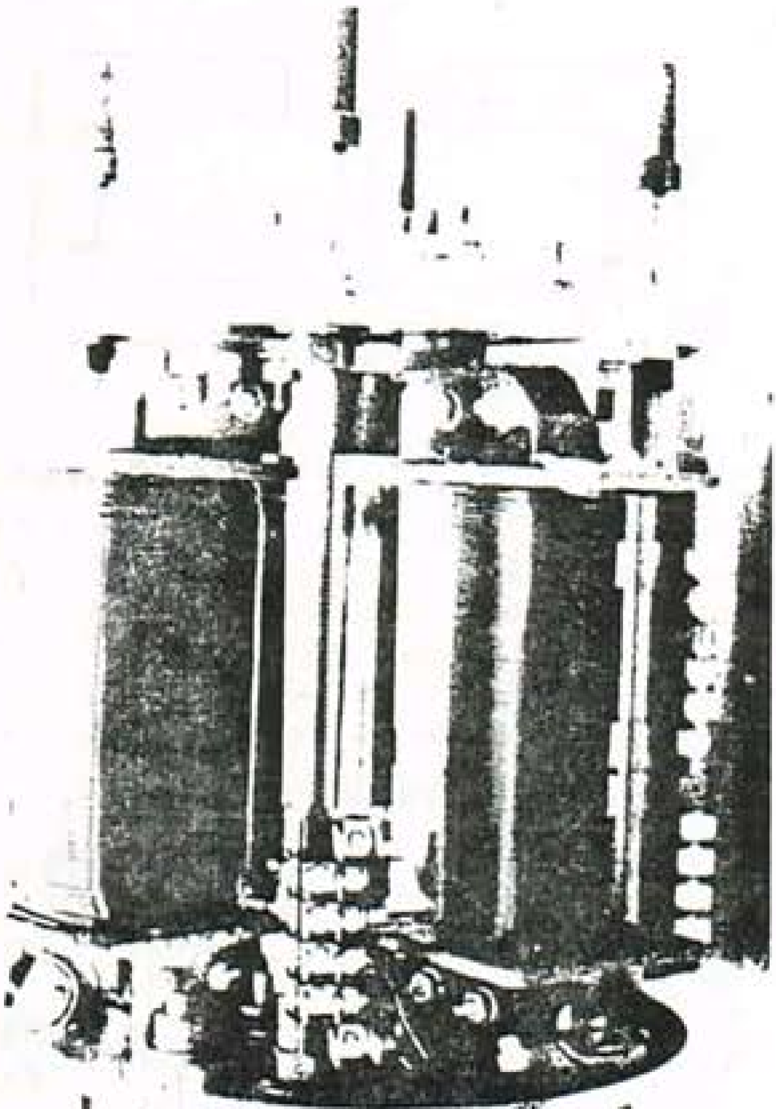
FREE TURNING SHIELD SET AT THE CLOSEST GAP POSSIBLE

The most efficient magnetic gap between these coils may be obtained by shifting the two outside coils. The gap should be no wider than is necessary to make the magnetic shields work efficiently. It may be easier to fabricate the shield shaft by piercing only the center coil with a bearing surface all the way through with a pully on each side of the coil, betweed the coil and the shield.



Note solid core in D.C. field coils.





DIMENSIONS AS ASSEMBLED

In the tested unit, we utilised transformer laminations as the coil cores. The D.C. cores could be made of solid iron since there is no magnetic reversal. The D.C. cores were 6½ inches in overall length with 3/4" by 3/4" cross section. The coil was wrapped with 100 turns per layer and six layers for 600 turns of 18 guage enameled copper wire. The coil length was 4½" overall. The A.C. cores were identical to the D.C. cores with 1200 turns of 18 guage enameled copper wir 100 turns per layer, with taps at 400 and 800 turns. The rotor was 3 inches diameter by 6½ inches long, with a 5/8" by 12" brass shaft.

The test motor was a Bodine Electric 1/10 h.p., 5,000 rpm rated at 115V @ 1.6A. The measured current was actually 1.9 amps.

GENERATOR

FIELD EXCITATION	RPM	400 turns		800 turns		1200 turns	
		VOLTS	AMPS	VOLTS	AMPS	VOLTS	AMPS
1.5 V 0.4 A	1200	15.2	X	31.0	X	45.2	X
	1800	23.5	X	44.5	X	72.2	X
	2800	32.0	X	64.1	X	104.0	X
	5000	31.2	0.19	58.2	X	89.5	X
3.0 V 0.8 A	1200	19.6	X	38.0	X	58.6	X
	1800	24.0	X	50.4	X	76.5	X
	2800	44.1	0.025	88.2	0.022	136.0	0.019
	5000	50.0	0.30	96.0	0.15	156.0	X
12.0 V 4.5 A FIELD COILS IN SERIES	1200	38.3	2.5	76.0	1.3	108.0	0.9
	1800	55.0	1.9	104.0	0.8	160.0	0.65
	2800	82.0	1.6	166.5	0.95	250.0	0.60
	5000	72.4	1.7	148.2	0.85	220.0	0.50
12.0 V 15.0 A FIELD COILS IN PARALLEL	1200	39.5	8.0	79.8	4.20	116.0	2.80
	1800	57.5	6.0	114.0	3.05	134.0	2.1
	2800	80.0	4.2	160.0	2.25	*240.0	*1.8
	5000	96.0	1.4	180.0	0.65	265.0	0.85
12.0 V 4.5 A FIELD COILS IN ERIES-- 10 mfd capacitor	1200	84.0	1.00	168.0	0.75	254.0	0.45
	1800	120.0	1.45	250.0	0.80	340.0	0.50
	2800	176.0	1.3	175.0	0.70	550.0	0.56
	5000	150.0	0.5	230.0	0.65	320.0	0.85

* This was the most efficient run.

At 2800 rpm with the field coils in parallel, and drawing 180 watts (12 volts @ 15 amps) of power, the total input power was 399 watts (the motor drew 1.9 amps @ 115 volts for a total of 219 watts during testing). From this test the generator output was 240 volts @ 1.8 amps for a total output of 432 watts. Assuming the motor was 100% efficient in converting the input power into mechanical energy, we can calculate the rough efficiency of the generator;

$$\frac{\text{OUTPUT POWER}}{\text{INPUT POWER}} \times 100 = \frac{432\text{ watts}}{399\text{ watts}} \times 100 = 108\%\text{ EFFICIENCY}$$

A more realistic assumption for the efficiency of the motor is 75%. From this we get an input power of 164 watts (219 X 75% = 164), plus the field coils 180 watts, we now have a power input of 344 watts. A more precise efficiency calculation is thus;

$$\frac{432\text{ watts}}{344\text{ watts}} \times 100 = 125\%\text{ EFFICIENT!}$$

Our initial tests were run with a ½ hp motor. However, we noticed that energising the field coils did not throw much of a load on the drive motor. Next, we matched a 1/10 hp motor to the generator and the results are the cited data. The reason for the minute horsepower required by the generator is that there is no relative motion between the magnets or the wires, and magnetism requires time for propogation. The result is that there is relatively no torque required to rotate the shaft. We did run the generator with a 1/20 hp fan motor, but the results were not good. The 1/20 hp could not self start and once started, the motor ran slow and hot.

Apparently the resistive torque on the shaft decreases with an increase in rpm. The generator ran cold, and a direct short on the output coils did not throw a load on the drive motor.

A curious thing happened during testing. We discovered that a capacitor shunted across the terminals of one of the coils (D.C. or A.C.) will provide the necessary field excitation without any other outside source. The procedure was to disconect all leads to three of the coils and shunt the remaining coil with a capacitor. Discharge the capacitor and then start the drive motor. Initially there is nothing, but at about 2,000 rpm, as the rotor comes up to speed, the generator self excites (probably due to the residual magnetism in the cores). Any attempt to draw power from the cap-coil results in shutdown, the same as the residual in contemporary generators. Yet, power can be taken from the three remaining coils.

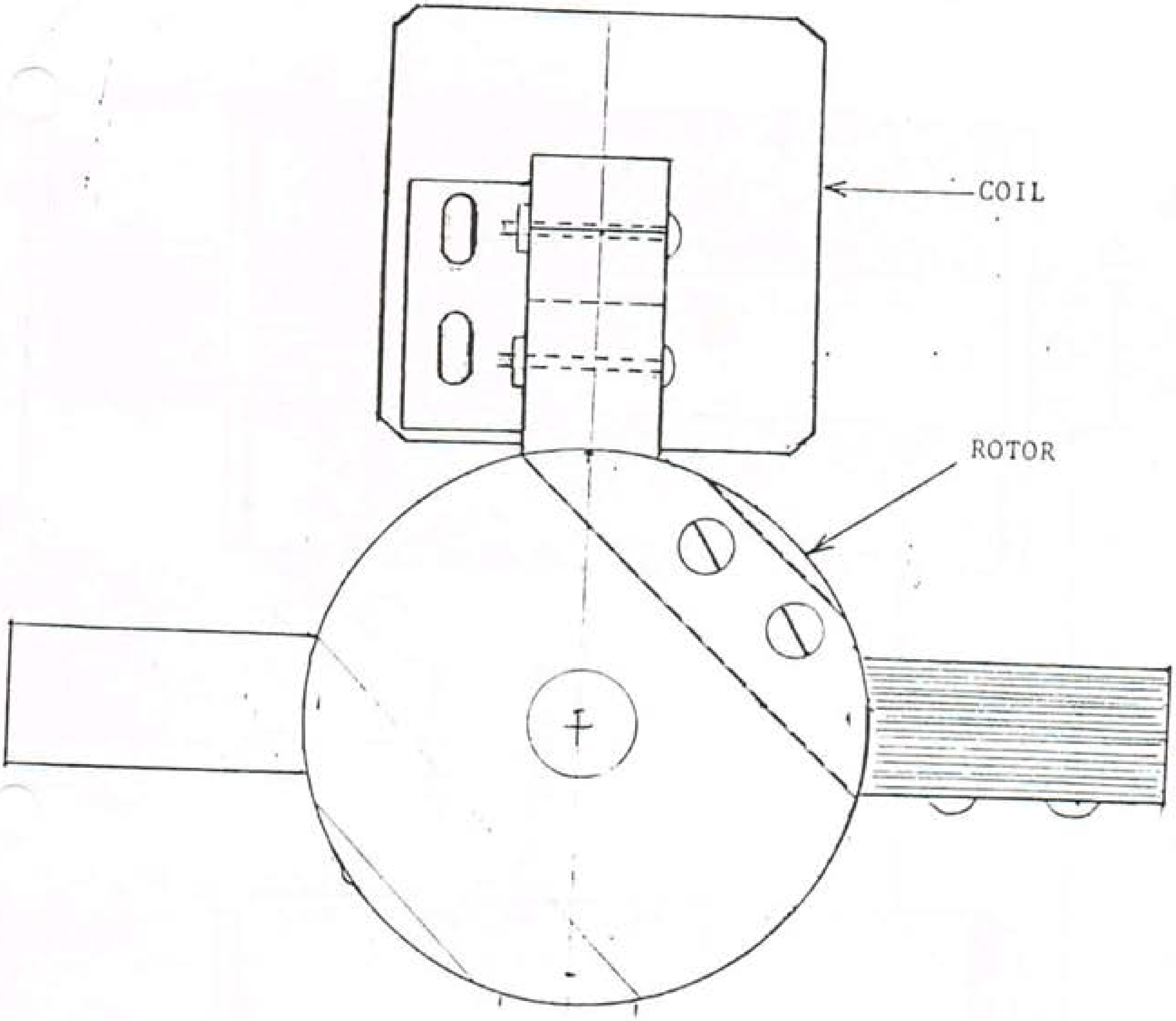
Performance data for two output coils in series, was 490 volts at 1.2 amps for an output of 588 watts with the only input power being that of the drive motor (115V-1.9A or 219 watts). Now lets assume the motor to be 100% efficient and calculate the efficiency of the self excited generator;

$$\frac{\text{OUTPUT POWER}}{\text{INPUT POWER}} \times 100 = \frac{588\text{ watts}}{219\text{ watts}} \times 100 = \underline{268\%\text{ EFFICIENT!!!}}$$

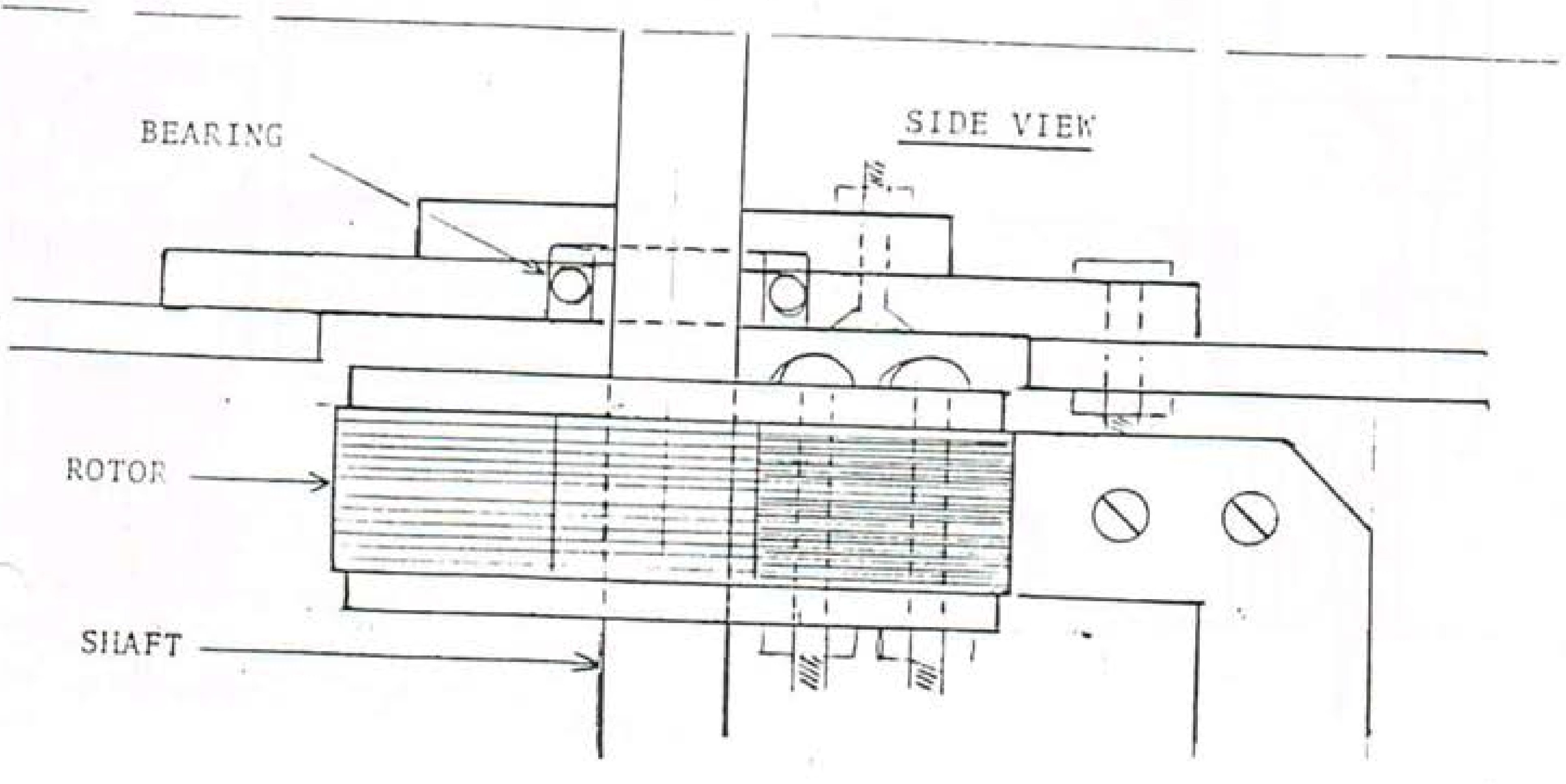
and at 75% we get

$$\frac{588\text{ watts}}{164\text{ watts}} \times 100 = \underline{358\%!!!!}$$

TOP VIEW



SIDE VIEW



M.D. GENERATOR: QUESTIONS AND ANSWERS

When I wrote the M.D. generator paper, my objective was to present the facts in a clear, concise, orderly manner that was short and to the point. Its reception by the public has been good, yet I have recieved many questions since then. My attempts to answer fully each individuals questions have been slow, time consuming, and repititious. I shall endeavor here to answer the really important and pertinant questions, keeping specualtion to a minimum and present the facts in full.

Surprisingly, one of the first questions was,"Who is Oleg Jefimenko?". Well, he has published much of his work. I will only give the references and those interested, may pursue this information on their own. Jefimenko states that an atmospheric electrostatic motor one meter on a side could produce one megawatt of power and weigh less than 500 kg.

1. "Tapping the Earth's Electric Field", Machine Design, Vol.43,pp.32-34 April 15,1971
2. C. Gilmore, "The Amazing Motor that Draws Power from the Air", Popular Science, April 1971, pp. 80-81,154
3. O. Jefimenko, D. Walker, "Electrostatic Motors", The Physics Teacher, March 1971,pp. 121-129
4. "Electrostatic Motors",by O. Jefimenko (available from; ELECTRET SCIENTIFIC CO., P.O. Box no. 4132, Star City, W. Virginia 26505 @$ 5.63)

The next most popular question is, "give me a few more details about the 'self-excitation'". In the previous paper, I gave no explanation as to why this happened, mostly because we were not sure, and I had hoped that the work of others with the M.D. system would shed some light on the subject. I now believe we have found the mechanism of this action. In the prototype, the aluminum end plates are connected by brass bolts, thus the frame had the capacity to freely conduct current in any direction. After a time, corrosion in the joints, between dissimilar metals, produced a diode effect, and now current is allowed to flow in only one direction. Knowing this, we can now explain the self-excitation mode. Simply put, the procedure is to replace the battery on the D.C. cores with a capacitor and then start the drive motor (good results have come from charging the capacitor from an outside source once the drive motor has been started, but this is not mandatory).

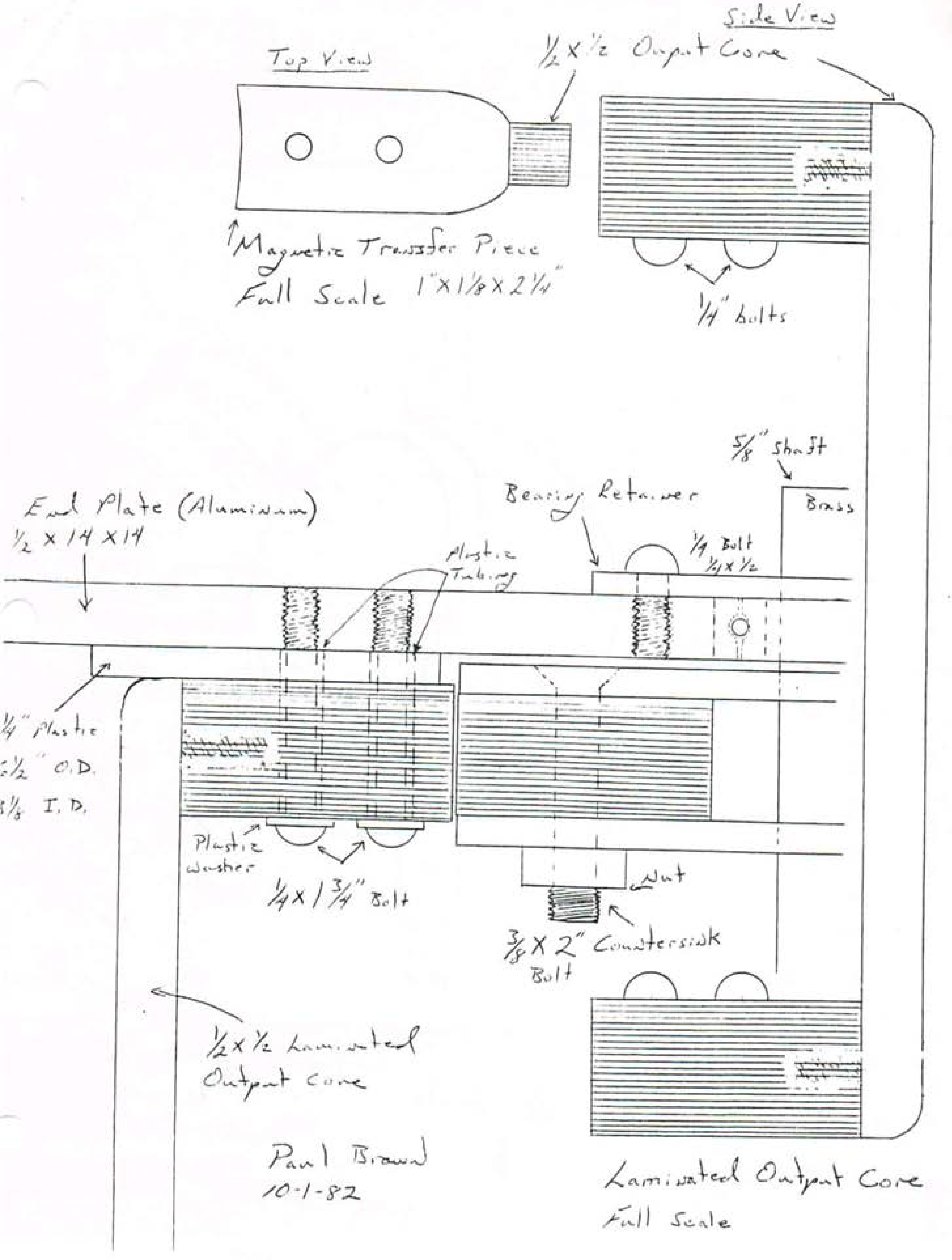
1. Residual magnetism, in the D.C. cores, provides the necessary magnetic field, during initial start-up, to produce an e.m.f..
2. The motion of the rotor gap (opening and closing) causes the magnetic field within the D.C. cores to pulse (not reverse, but simply to fluctuate).
3. This magnetic flux, within the D.C. coil, produces a small e.m.f. that is stored in the capacitor.
4. The accumulation of charge in the capacitor builds until it "overflows" and consequently a current now flows through the D.C. field winding (this current is A.C. of a frequency dependant upon rotor rpm).
5. This flow of current produces a magnetic field in a pulsed manner.
6. The generator action (as explained elsewhere) produces an A.C. current in the output coils.
7. The alternating magnetic field of the A.C. cores, leaks from the ends to induce eddy-currents in the aluminum end plates.

8. The main frame and the shaft should be of non-magnetic material. The only ferro-magnetic materials used in the M.D.G. should be in the coil cores.
9. The gap between the rotor and the pole face is not hypercritical. The opposite situation would seem to be the case, however, we have operated with a gap of approximately 1/16 inch without a substantial loss of power.
10. The rotor face should be wider than the pole face. This allows more time to establish a magnetic field around the A.C. coil. This is not a must, but a higher efficiency is the result.

I hope that this is sufficient information to not only permit duplication but also progress with the M.D. system. Further data shall be accumulated, worked into a comprehensible presentation, and released as it becomes available.

PAUL BROWN
Oct. 15,1982

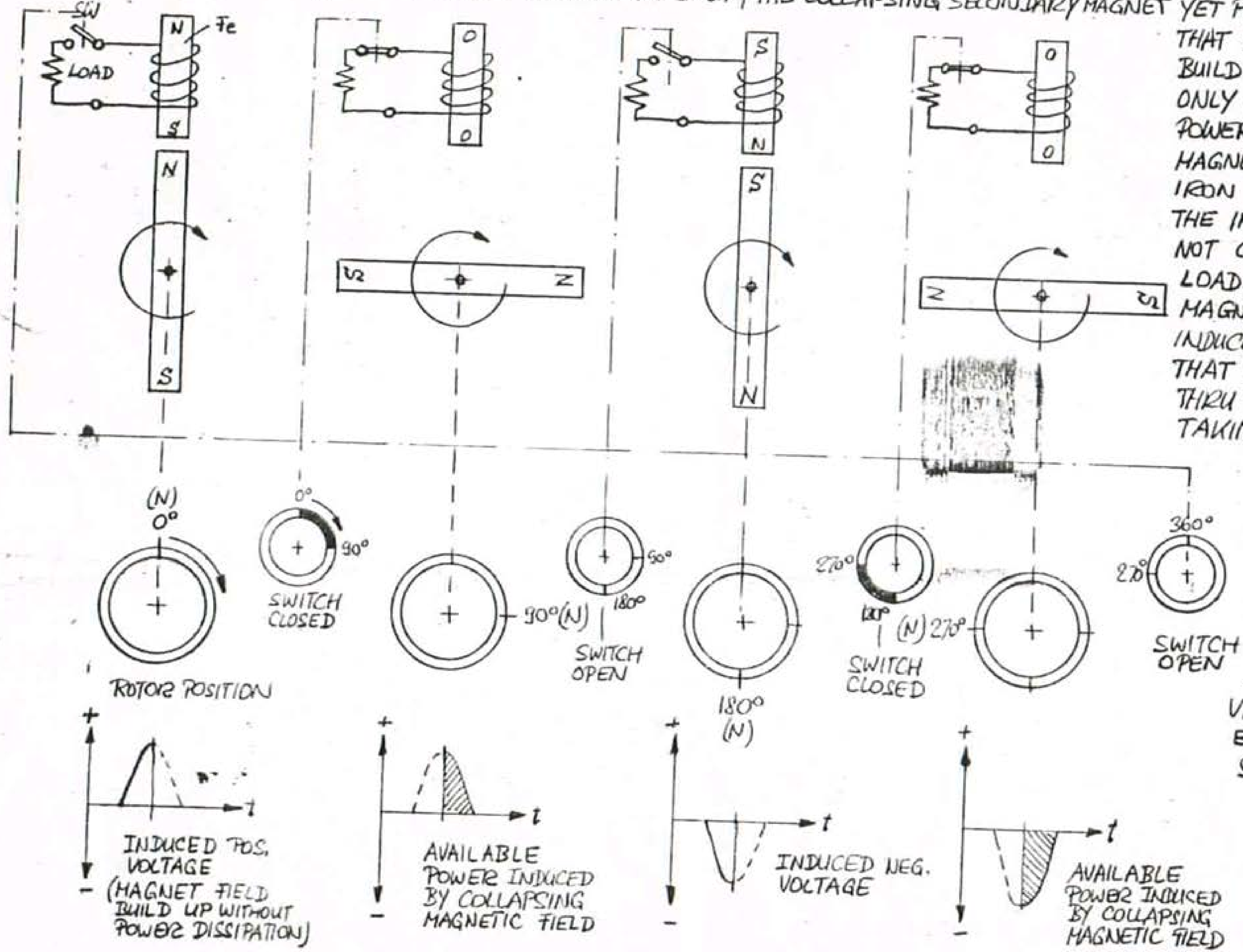
The machine that appears on the next two pages has not yet been built nor tested. However, this proposed device utilises all the beneficial modifications to the M.D. generator presently known. The expected efficiency is very high with a high power output. Note the magnetic supersaturation of the iron A.C. cores. Look the plans over as they could give you insights for your own machine. Anyone who whishes to construct this device has my permission, I would however, like to be informed of the results. Upon completion of this device I shall release my data.



Paul Brown
10-1-82

FREE ENERGY GENERATION

FUNCTIONAL THEORY, BASED ON PRINCIPLE THAT PRINCIPAL MAGNET CAN PRODUCE ∞ NUMBER OF SECONDARY MAGNETS, WITHOUT ITSELF GETTING USED UP, THE COLLAPSING SECONDARY MAGNET YET PRODUCING POWER THAT CAN BE USED. THE BUILD UP OF MAGNETISM ONLY CONSUMES THE POWER TO OVERCOME THE MAGNETIC LOSSES OF THE IRON CORE, AS LONG AS THE INDUCED VOLTAGE IS NOT CONNECTED TO THE LOAD. THE COLLAPSING MAGNETIC FIELD THEN INDUCES ALSO POWER. THAT CAN BE DISSIPATED THRU THE LOAD, WITHOUT TAKING ROTARY ENERGY. THE NET ENERGY OUTPUT IS THEN: ROTARY AND MAGNETIC LOSSES, VERSUS A HALF CYCLE POWER DISSIPATION INTO THE LOAD. IT IS CLEARLY VISIBLE THAT EXCESSIVE ENERGY FROM THIS SYSTEM IS AVAILABLE.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